MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2017 / 2018

TSA 2131 – SYSTEMS ANALYSIS AND DESIGN

(All sections / Groups)

24 OCTOBER 2017
9.00 a.m. – 11.00 a.m.
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of 5 pages including the cover page.
2. Attempt **ALL** questions. The distribution of the marks for each question is given.
3. Please print all your answers in the Answer Booklet provided.
4. For Question 4(b), please print your answers in the appendix provided and submit together with the answer booklet.

QUESTION 1

(a) What is systems analysis and design (SAD)? State any TWO (2) reasons of using the CASE tools for SAD.

(4 marks)

(b) List THREE (3) situations that warrant the use of Joint Application Design (JAD) in place of personal organizational interviews.

(3 marks)

(c) What are the potential consequences of not assessing the technical risks associated with an information systems development project?

(2 marks)

(d) List THREE (3) out of the many benefits of cloud computing for maintenance.

(3 marks)

QUESTION 2

(a) Compare THREE (3) different types of system feedback. Is any form of feedback more important than the others? Why or why not?

(4 marks)

(b) Extreme programming was the first Agile method to truly challenge traditional Waterfall model.

Defend the above statement by focusing on the fundamental idea of extreme programming. In what situation extreme programming can be the effective methodology of system analysis and development.

(3 marks)

(c) With the aid of an example for each, briefly explain any THREE (3) factors to determine that one information system project is riskier than another.

(3 marks)

d) What is the difference between a logical and physical data flow diagram?

(2 marks)

Continued...

QUESTION 3

(a) Develop a context diagram for Web based Project Management System described in the following narrative.

(4 marks)

Future University has opened a research grants for approximately 300 academics for year 2017. To speedy the process of application, the university has decided to use web project management system to allow academics to submit research proposal online. In this context, all project leaders are required to input their user ID, staff number, name, address, phone contacts and email address and register at the web portal. Once the registration is successful, a project number will be auto-assigned and the respective project leader need to verify their identity via email. Next, the project leader start is to write the first draft of the requested proposal. Upon completion of the project, the project leader is required to upload the proposal online. The university will then assign two peer reviewers in the related field to check the viability of the project and ensure that it is correct and meets the grant requirements. This review process may happen through several iterations until the reviewers are satisfied with the proposal. When those changes are made, two reviewers must review those changes. Finally, these reviewers are required to recommend the proposal to steering committee for further action.

(b) Structured English is a tool for representing internal structure and functionality of processes. Based on the structure English below, answer the following question.

```
READ transaction amount
BEGIN IF
        IF transaction amount is less than RM100
        THEN queue in any lane of Counter 1 to 5 and use cash for payment
        ELSE IF transaction amount is equal or more than RM100
        THEN
                BEGIN IF
                        IF make cash payment
                        THEN queue in any lane of Counter 1 to 5
                        ELSE IF makes credit card payment
                        THEN queue in lane of Counter 5
                END IF
END IF
```

Convert the descriptions demonstrated by Structured English depicted into a decision tree diagram.

(3 marks)

Continued...

(c) A project has been defined to contain the following list of activities along with their required times for completion.

Activity	Duration (weeks)	Immediate Predecessors	Early Finish (T_E)	Late Finish (T_L)	Slack	Critical Path?
1	3	-				
2	2	1				
3	2	2				
4	6	2				
5	3	3				
6	3	3,4				
7	4	4,5				
8	7	6,7				

(i) Complete the table above and construct a network diagram based on the activities. For each activity, identify its early finish time, late finish time, and slack.

(4 marks)

(ii) Identify the critical path.

(1 mark)

QUESTION 4

(a) When conducting a business process reengineering (BPR) study, what should you look for when trying to identify business processes to change? Given an example, identify the role information technology in BPR.

(4 marks)

(b) Assume a proposed information system has a useful life of 5 years, with monetary benefits at RM 750,000 per year, one-time cost of RM1,000,000 and recurring cost of RM 250,000 per year. If the cost of capital is 10%, calculate the following:

(i) Net Present Value (NPV) of these costs and benefits of an information system based on the sheet given. (6 marks)

(ii) Find the point of breakeven. (2 marks)

Note: Please round to nearest 2 decimal places for discount rate and nearest integer value for Present Value (PV).

Continued...

QUESTION 5

(a) Briefly describe four approaches to installation. Which is the most risky? How does an organization decide which approach to use?

(4 marks)

(b) What types of measurements must be taken to gain an understanding of the effectiveness of maintenance? Why is tracking mean time between failures an important measurement?

(5 marks)

(c) Design specifications are the major deliverables and inputs to the system implementation phase. Briefly describe the THREE (3) sections of design specifications.

(3 marks)

End of Paper

Appendix: Answer Sheet for Question 4 (b)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Totals
Net Economic Benefit							
Discount Rate							
PV of Benefits							
NPV of all Benefits							
One-Time Cost							
Recurring Costs							
Discount Rate							
PV of Recurring Costs							
NPV of all Costs							
Overall NPV							
Return of Investment (ROI)							
Break-even Analysis							
Yearly NPV Cash Flow							
Overall NPV Cash Flow							